



Decision Making Constructs in a Distributed Environment (DCODE)

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Overall Objectives and this year's Objectives

Overall Objectives: the development of a decision support tool for reducing the problems involved with **the storing, sharing and integration of subjective information assessments.**

Use the quantification and sharing of these subjective assessments to **improve the quality of group decision making** and to significantly reduce the time devoted to **conflict resolution and team consensus building.**

This year's objectives are:

- (1) the **transition** of the DCODE to the user community
- (2) continued **research** to demonstrate the efficacy of DCODE
- (3) improved **documentation** and publication of the DCODE tool.

Research Questions Addressed


- (1) How can **knowledge elicitation techniques** be designed that capture the major subjective information assessments needed for each decision-relevant information item

...but does not place an unacceptable **cognitive/time burden** on the user?
- (2) Research indicates that a minimum set of 3 – 6 essential assessments might be required for each item. How do we configure a **simplified user interface** that can score, display and quantify all these required subjective assessments?
- (3) In a group decision making environment, how can these individual information assessments be quickly shared/transferred among participants to **minimize the time the group devotes to conflict resolution and the building of a consensus.**



Technical Approach

**Follow this DCODE process for all
decision relevant information:**

- 
- Abstract
 - Encapsulate
 - Assess
 - Integrate
 - Share
 - Decide



DCODE Information Abstraction and Encapsulation

Mission: Rescue hostages from Islandia
Decision Options: Marines; SEALs; Army
Factors: Speed (ETA), Covertness, Risk, etc

CINCPAC email

To: LTCJohnson@cincpac.mil
From: steve.thomas@noaa.gov
Subject: Islandia tides and currents

Hello LTC Johnson

I have been looking at detailed marine charts of Islandia's reef system. Based on this analysis I would say that only one small section of the reef (coordinate G17) is passable, and then **only at PEAK high tide**. This will next occur at 1700 10/14. The word of caution is that the soundings are over 25 years old and may have changed (either for the better or the worse) regarding ease of crossing.

V/R
Steve Thomas

**Best ETA for
SEALS is 1900
hrs, 10/14**

☐ P ☐ ☐ 0

☐ ☐ ☐

Nov-21-05 11:33AM G...

Fleming

ETA

Situation Assessment:
Is Carlos still in Columbia?

Homeland Security email

To: joseph.donovan@dea.gov
From: william.kays@omb.gov
Subject: Re: acct. activity

Mr. Donovan

Fred Barnes in Finance Tracking informs me within the last 10 days, \$27K was deposited in the referenced account (10/7) and \$25K was withdrawn on 10/9. This is unusual activity for this account

V/R
Bill Kays

Information is
Abstracted,
Encapsulated
but **NOT**
Assessed!

**Unusual \$ activity
in Carlos'
checking
account 10/7, 10/9**

☐ P ☐ ☐ 0

☐ ☐ ☐

Dec-19-05 9:03AM GM...

Fleming

Money Activity

DCODE Information Assessment



Which option is impacted?
How is it impacted?
How important is this item?
Quality of the information?
Timely?
Credible source?
Well documented?



EWall Information Card

Information Object (IOB)

This DCODE coding
tells me that this
information ...

- Negatively impacts the viability
of the using the SEALS option.
- Is considered of high importance.
- There is some issue with the quality
of this information.

DCODE Information Assessment (cont.)

Unusual \$ activity
in Carlos'
checking account,
10/7, 10/9

☐ ☐ ☐ ☐ ☐ 0

☐ ☐ ☐ in Columbia

Money Activity

Every time Carlos has
left Columbia, there
have been large deposits
and withdrawals in his
account

Unusual \$ activity
in Carlos'
checking
account 10/7, 10/9

☐ ☐ ☐ ☐ ☐ 0

☒ ☐ in Columbia

Dec-19-03 9:05 AM 011...

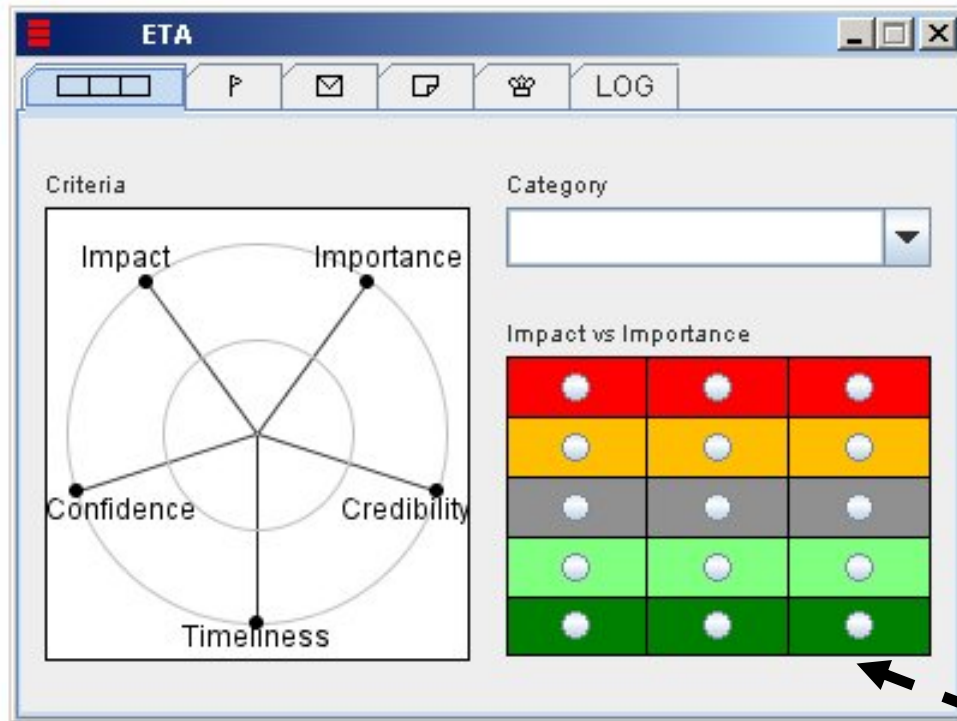
Fleming

Money Activity

This DCODE coding
tells me that this
information ...

- Very Negatively impacts the likelihood Carlos is in Columbia.
- Is considered of high importance.
- There is no question about the quality of the information.

Activating the DCODE Assessment Template



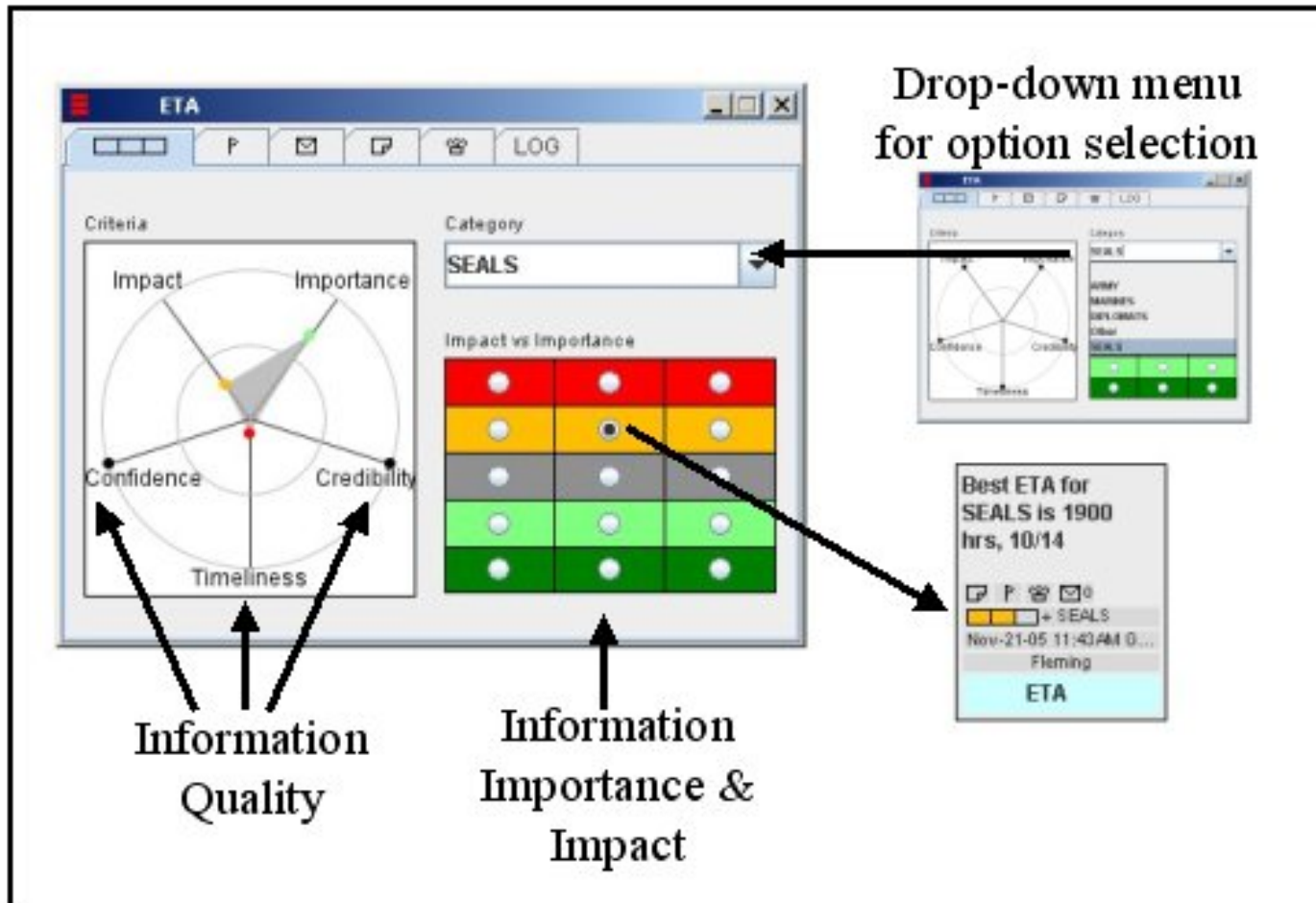
Best ETA for
SEALS is 1900
hrs, 10/14

Nov-28-05 10:45AM G...







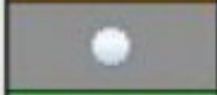
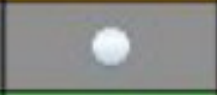
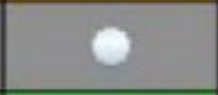






Fleming

ETA

The Assessment Template



Scoring Impact and Importance

		Importance →		
		Average	High	Very High
I M P A C T ↓	Very Negative			
	Negative			
	Neutral			
	Positive			
	Very Positive			

Item is of “High” importance (2 boxes) and has a “Negative” impact (yellow) on this option.

IMPORTANCE (# boxes filled):

AVERAGE (1)



HIGH (2)



VERY HIGH (3)



IMPACT: (color)

Very
Positive



Positive



Negative

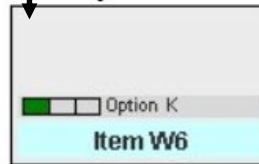


Very
Negative



Average Importance

Very Positive



High Importance

Very Positive



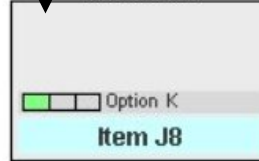
Very High Importance

Very Positive



Average Importance

Positive



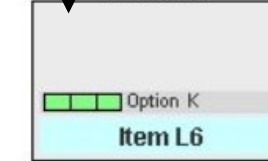
High Importance

Positive



Very High Importance

Positive



Average Importance

Negative



High Importance

Negative



Very High Importance

Negative



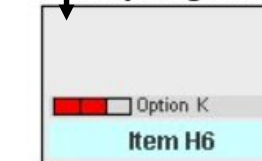
Average Importance

Very Negative



High Importance

Very Negative



Very High Importance

Very Negative



Sample DCODE Assessments

Single Option: Buy stock "A"?

Selecting a House

22 min. <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Concord Blvd Nov-28-05 11:29AM G... Fleming Commute time	47 min. <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Adams St. Nov-28-05 11:29AM G... Fleming Commute Time
Parking Lot <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Concord Blvd Nov-28-05 11:32AM G... Fleming View	Shoreline <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Adams St. Nov-28-05 11:32AM G... Fleming View

Selecting a Car

9.7 mpg <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Hummer Nov-28-05 11:24AM G... Fleming Gas Mileage	28.1 MPG <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Civic Nov-28-05 11:27AM G... Fleming Gas Mileage
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Selecting a College


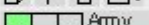

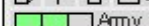
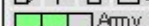

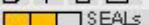
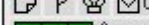
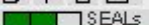
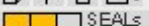
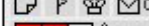
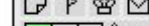
 <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Wisconsin Nov-28-05 11:33AM G... Fleming Parties	 <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Utah Nov-28-05 11:40AM G... Fleming Parties
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87 <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Dec-1-05 10:39AM GM... Fleming P/E ratio
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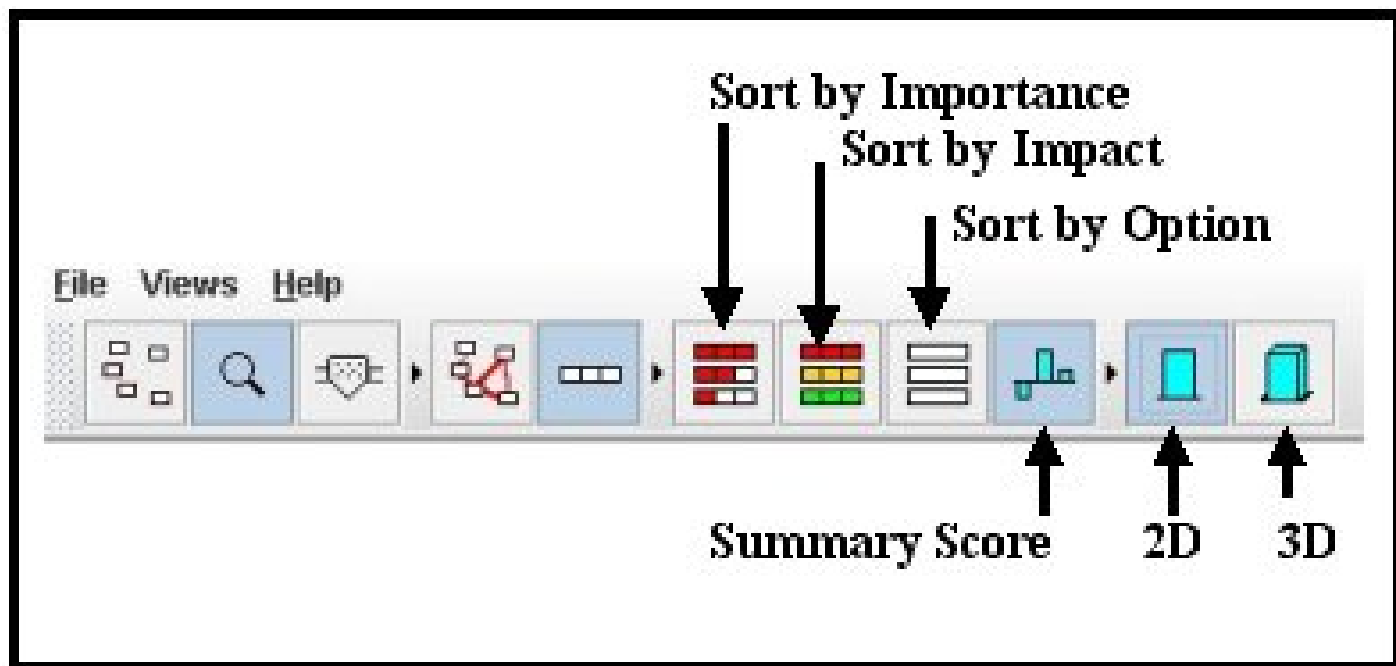
7.9% <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Dec-1-05 10:39AM GM... Fleming 5-yr avg. return

"Hold" <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Dec-1-05 10:39AM GM... Fleming Broker rating
--

Which is the BEST option, SEALs or Army?

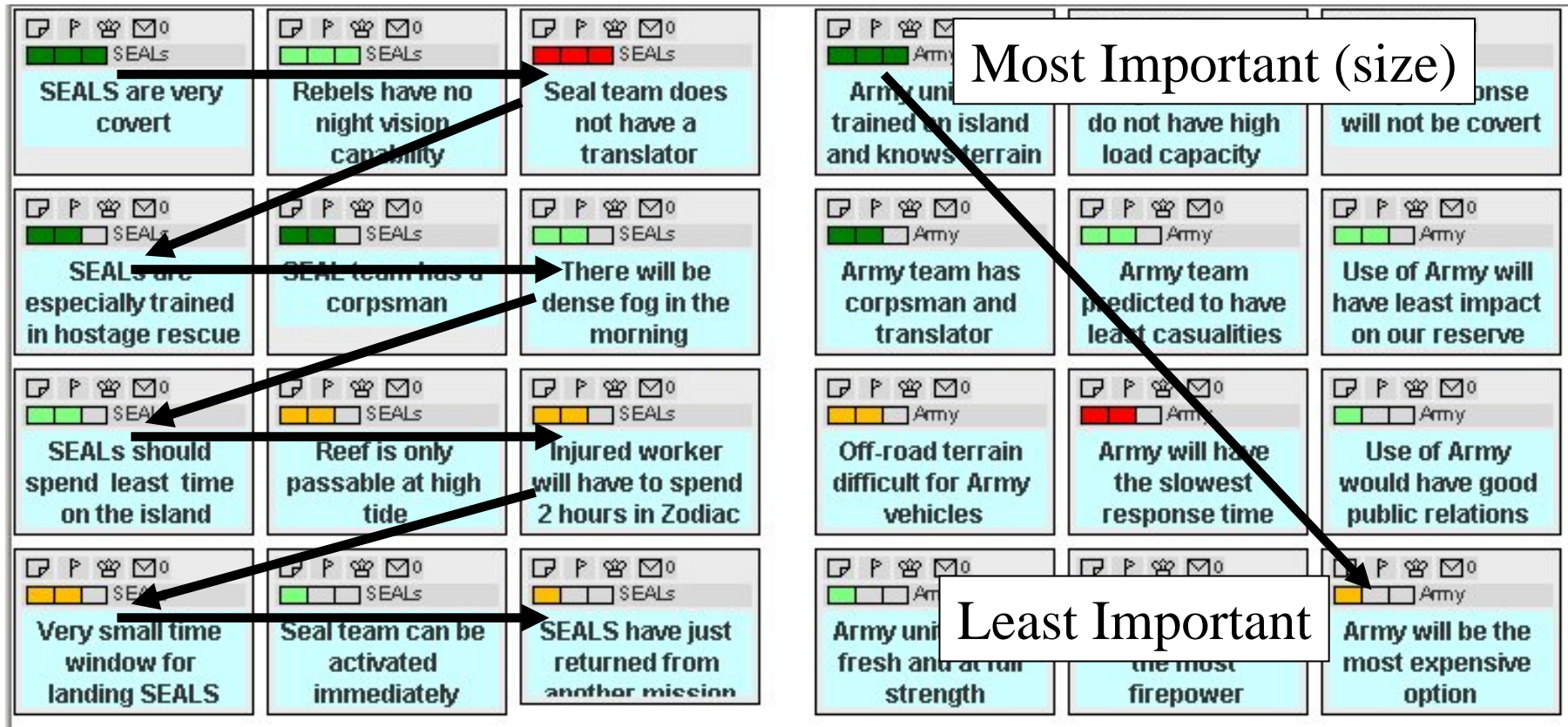
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Rebels have no night vision capability	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs SEALS have just returned from another mission	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Bridges on roads do not have high load capacity	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army will be the most expensive option
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs SEALS are very covert	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs There will be dense fog in the morning	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army will have the most firepower	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Off-road terrain difficult for Army vehicles
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Seal team can be activated immediately	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Very small time window for landing SEALs	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Use of Army will have least impact on our reserve	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army team predicted to have least casualties
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Seal team does not have a translator	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Injured worker will have to spend 2 hours in Zodiac	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army team has corpsman and translator	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army unit has trained on island and knows terrain
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs SEALS are especially trained in hostage rescue	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs SEAL team has a corpsman	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army unit is very fresh and at full strength	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army response will not be covert
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs SEALS should spend least time on the island	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  SEALs Reef is only passable at high tide	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Army will have the slowest response time	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> 0  Army Use of Army would have good public relations

Integration of IOBs



























Sorted by Importance:

Very High – High -- Average



Sorted by Impact:

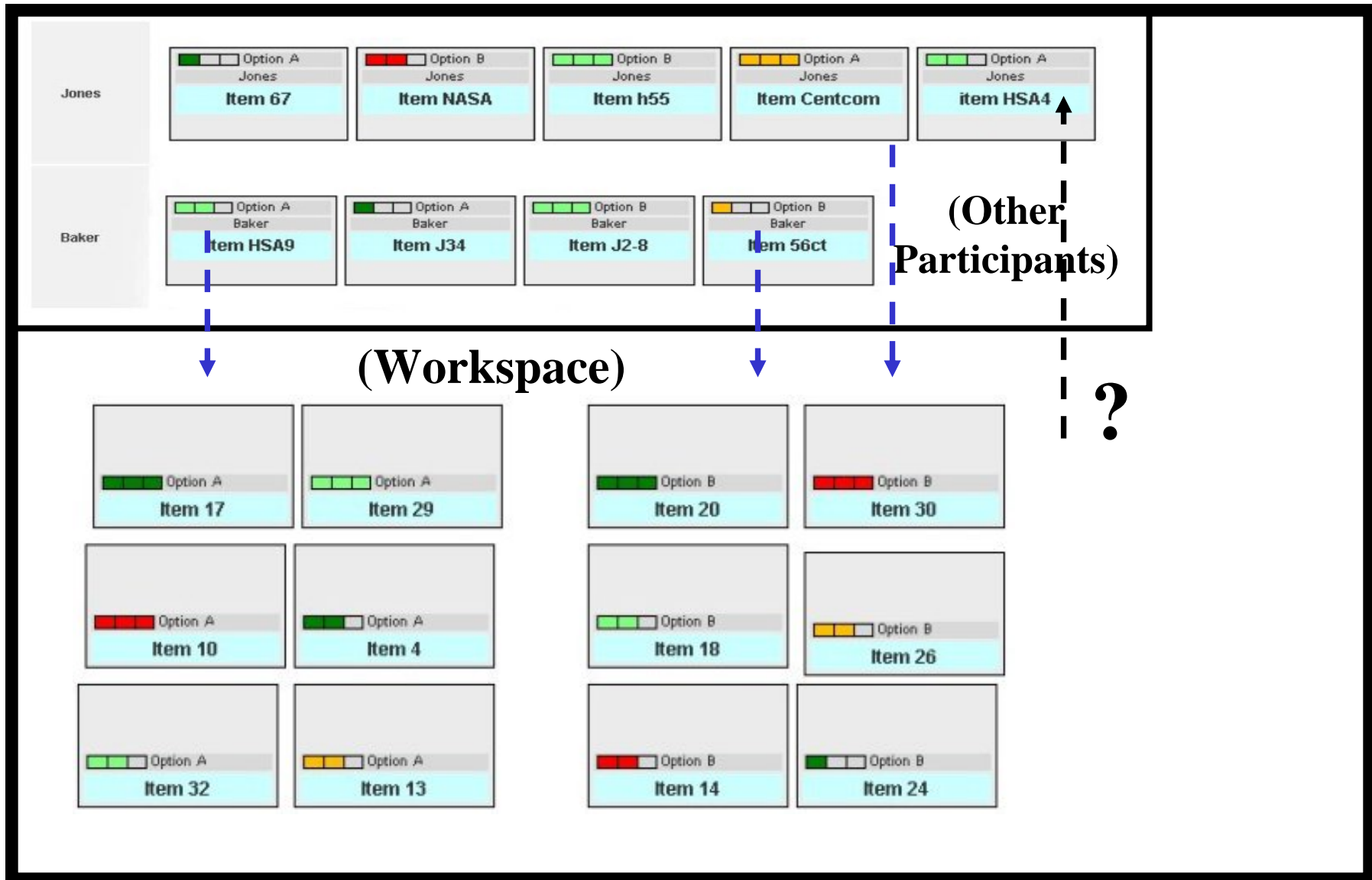
Very Positive, Positive, Negative, Very Negative

<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS SEALS are very covert	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS SEAL team has a corpsman	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS SEALs are especially trained in hostage rescue	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army unit trained on and knows terrain	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  translator	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  on our reserve
<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Rebels have no night vision capability	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS There will be dense fog in the morning	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS SEALs should spend least time on the island	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army team predicted to have least casualties	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Use of Army would have good public relations	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army will have the most firepower
<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Seal team can be activated immediately	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Very small time window for landing SEALs	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Injured worker will have to spend 2 hours in Zodiac	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army unit is very fresh and at full strength	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Off-road terrain difficult for Army vehicles	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army will be the most expensive option
<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Reef is only passable at high tide	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS SEALs have just returned from another mission	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  SEALS Seal team does not have a translator	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Bridges do not have load capacity	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Most Negative	<input type="checkbox"/> P <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0  Army Army will have the slowest response time



DCODE Sharing

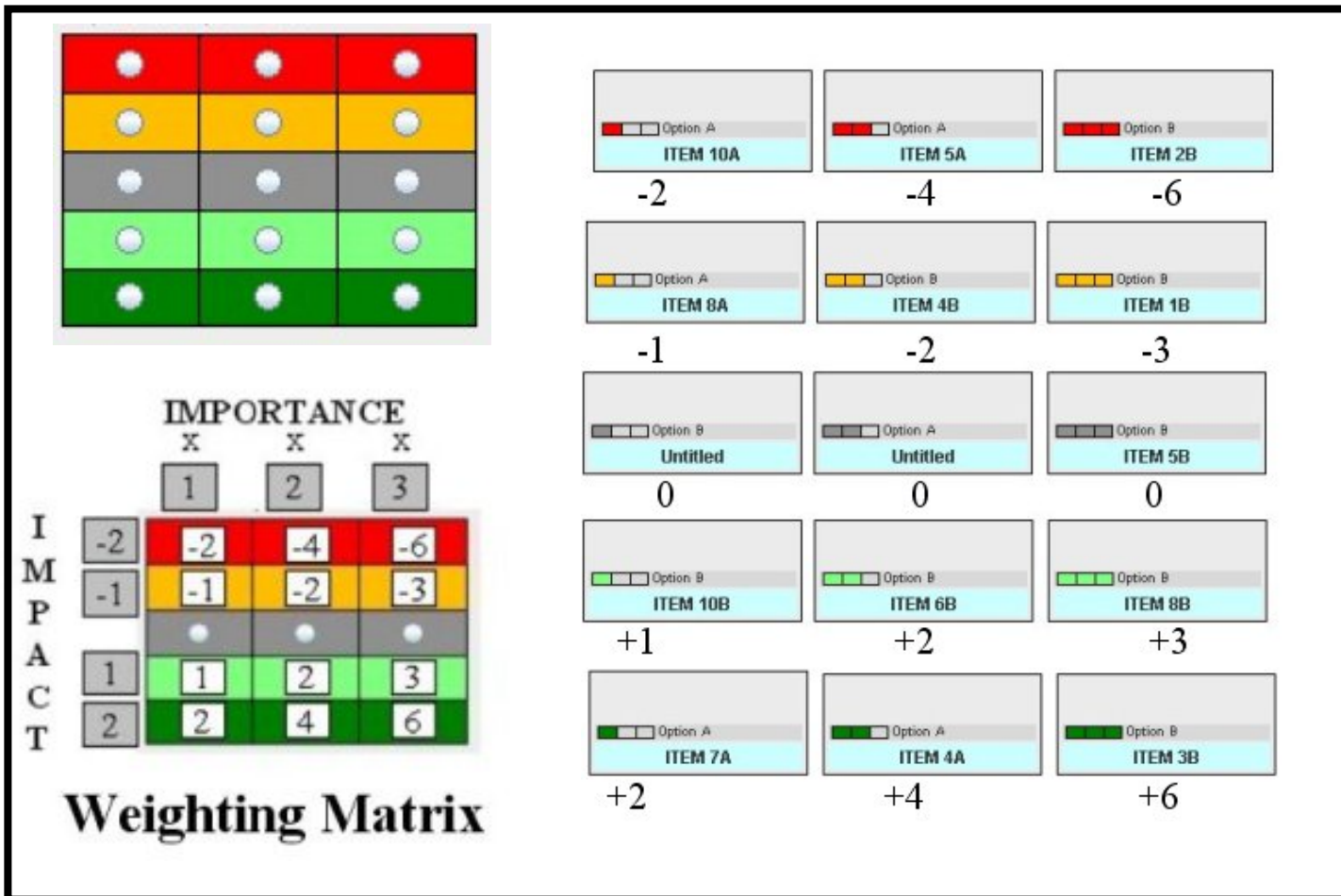
Research & Engineering
Development, Inc. (RED-Inc)



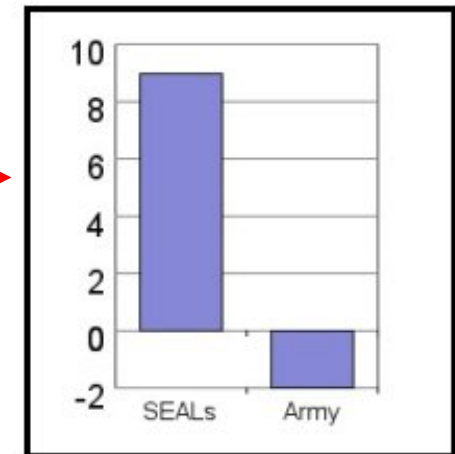
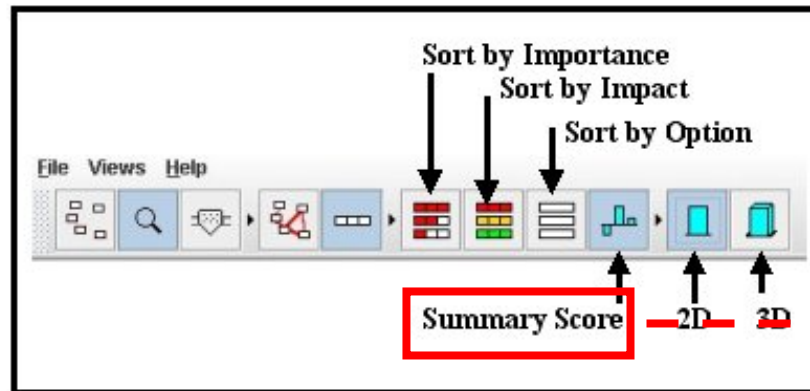
Smith's Display (EWall workspace + Exchange view)

Making Decisions with DCODE

The Weighting/Scoring matrix



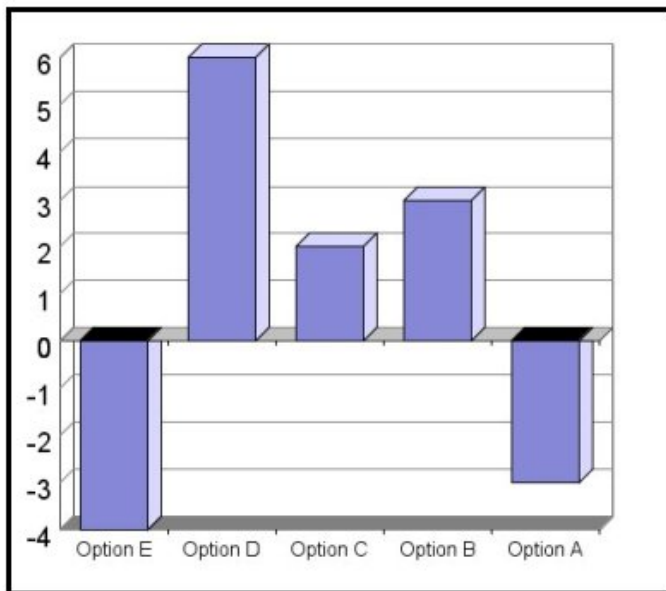
Summary Score Bar Chart



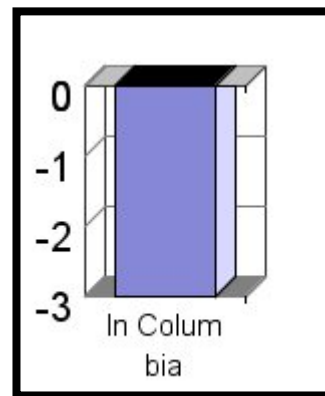
Algebraic sum
of all IOBs for
each option.

<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs SEALs are very covert	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs SEAL team has a corpsman	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs SEALs are especially trained in hostage rescue	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army unit has trained on island and knows terrain	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army team has corpsman and translator	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Use of Army will have least impact on our reserve
<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Rebels have no night vision capability	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs There will be dense fog in the morning	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs SEALs should spend least time on the island	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army team predicted to have least casualties	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Use of Army would have good public relations	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army will have the most firepower
<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Seal team can be activated immediately	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Very small time window for landing SEALs	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Injured worker will have to spend 2 hours in Zodiac	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army unit is very fresh and at full strength	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Off-road terrain difficult for Army vehicles	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army will be the most expensive option
<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Reef is only passable at high tide	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs SEALs have just returned from another mission	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SEALs Seal team does not have a translator	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Bridges on roads do not have high load capacity	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army response will not be covert	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Army Army will have the slowest response time

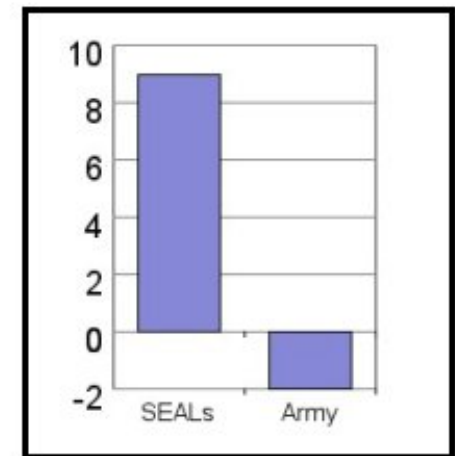
Sample DCODE Summary Results



Multiple Options



Single Option
(Yes-NO, Act-Don't Act)



Two Options



Short AVI on DCODE use
(2 min 40 sec)

DCODE Process



- Abstract
- Encapsulate



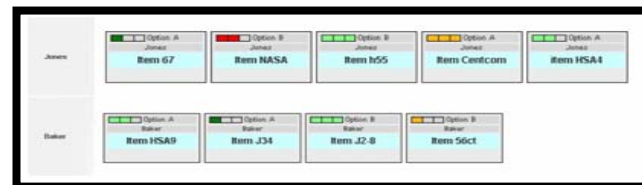
- Assess
- Option
- Importance
- Impact
- Quality

- Option
- Importance
- Impact

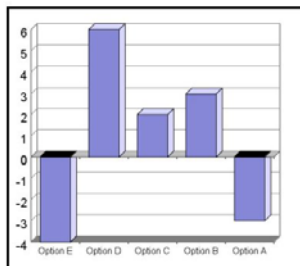


- Integrate/Sort

- Share



- Decide





Experiments (Planned/Completed)

NEED YOUR HELP!



Research Question:

Does the use of the DCODE Assessment bar improve decision making quality?

Decision Task: Rank order three candidate cities (A, B and C) in terms of preference as a location for a new store.

12 information items about each city.

2-Group Design

Text vs. DCODE Bar

Text Group

<p>Very High Importance Very Positive Impact</p> <p>Option A</p> <p>Item 17</p>	<p>Very High Importance Positive Impact</p> <p>Option A</p> <p>Item 29</p>
<p>Very High Importance Very Negative Impact</p> <p>Option A</p> <p>Item 10</p>	<p>High Importance Very Positive Impact</p> <p>Option A</p> <p>Item 4</p>
<p>High Importance Positive Impact</p> <p>Option A</p> <p>Item 32</p>	<p>High Importance Negative Impact</p> <p>Option A</p> <p>Item 13</p>
<p>High Importance Negative Impact</p> <p>Option A</p> <p>Item 9</p>	<p>High Importance Negative Impact</p> <p>Option A</p> <p>Item 16</p>
<p>Average Importance Very Positive Impact</p> <p>Option A</p> <p>Item 25</p>	<p>Average Importance Positive Impact</p> <p>Option A</p> <p>Item 1</p>
<p>Average Importance Positive Impact</p> <p>Option A</p> <p>Item 7</p>	<p>Average Importance Negative Impact</p> <p>Option A</p> <p>Item 11</p>

Functionally
equivalent

DCODE Group

<p>Option A</p> <p>Item 17</p>	<p>Option A</p> <p>Item 29</p>
<p>Option A</p> <p>Item 10</p>	<p>Option A</p> <p>Item 4</p>
<p>Option A</p> <p>Item 32</p>	<p>Option A</p> <p>Item 13</p>
<p>Option A</p> <p>Item 9</p>	<p>Option A</p> <p>Item 16</p>
<p>Option A</p> <p>Item 25</p>	<p>Option A</p> <p>Item 1</p>
<p>Option A</p> <p>Item 7</p>	<p>Option A</p> <p>Item 11</p>



Text Group

Instructions

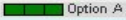
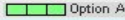
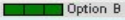


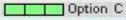
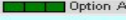
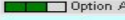

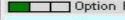

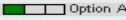
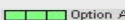

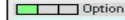
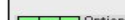
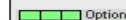
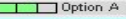
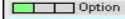
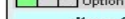
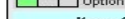

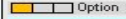
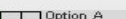





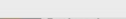
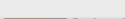
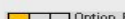

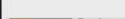
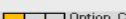
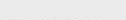
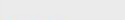
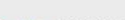
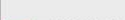
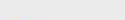
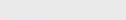
Sorted by Impact

Very High Importance Very Positive Impact		High Importance Very Positive Impact		Very High Importance Very Positive Impact		Average Importance Very Positive Impact		Very High Importance Very Positive Impact		High Importance Very Positive Impact	
<input type="checkbox"/> Option A		<input type="checkbox"/> Option A		<input type="checkbox"/> Option B		<input type="checkbox"/> Option B		<input type="checkbox"/> Option C		<input type="checkbox"/> Option C	
Very High Importance Very Positive Impact <input type="checkbox"/> Option A Item 17	Very High Importance Positive Impact <input type="checkbox"/> Option A Item 29	Very High Importance Very Positive Impact <input type="checkbox"/> Option B Item 20	Very High Importance Very Negative Impact <input type="checkbox"/> Option B Item 30	Very High Importance Very Positive Impact <input type="checkbox"/> Option C Item 28	Very High Importance Positive Impact <input type="checkbox"/> Option C Item 19	Very High Importance Very Negative Impact <input type="checkbox"/> Option C Item 15	High Importance Very Positive Impact <input type="checkbox"/> Option C Item 27	High Importance Positive Impact <input type="checkbox"/> Option C Item 33	High Importance Very Negative Impact <input type="checkbox"/> Option C Item 23	Average Importance Very Positive Impact <input type="checkbox"/> Option B Item 24	Average Importance Positive Impact <input type="checkbox"/> Option B Item 36
Very High Importance Very Negative Impact <input type="checkbox"/> Option A Item 10	High Importance Very Positive Impact <input type="checkbox"/> Option A Item 4	High Importance Positive Impact <input type="checkbox"/> Option B Item 18	High Importance Negative Impact <input type="checkbox"/> Option B Item 26	Very High Importance Positive Impact <input type="checkbox"/> Option C Item 15	High Importance Very Positive Impact <input type="checkbox"/> Option C Item 27	High Importance Negative Impact <input type="checkbox"/> Option C Item 12	High Importance Very Negative Impact <input type="checkbox"/> Option C Item 23	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21
High Importance Positive Impact <input type="checkbox"/> Option A Item 32	High Importance Negative Impact <input type="checkbox"/> Option A Item 13	High Importance Very Negative Impact <input type="checkbox"/> Option B Item 14	Average Importance Very Positive Impact <input type="checkbox"/> Option B Item 24	High Importance Negative Impact <input type="checkbox"/> Option C Item 12	High Importance Very Negative Impact <input type="checkbox"/> Option C Item 23	Average Importance Negative Impact <input type="checkbox"/> Option C Item 8	Average Importance Negative Impact <input type="checkbox"/> Option C Item 22	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21
High Importance Negative Impact <input type="checkbox"/> Option A Item 9	High Importance Negative Impact <input type="checkbox"/> Option A Item 16	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 36	Average Importance Negative Impact <input type="checkbox"/> Option C Item 8	Average Importance Negative Impact <input type="checkbox"/> Option C Item 22	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21
Average Importance Very Positive Impact <input type="checkbox"/> Option A Item 25	Average Importance Positive Impact <input type="checkbox"/> Option A Item 1	Average Importance Positive Impact <input type="checkbox"/> Option B Item 6	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21
Average Importance Positive Impact <input type="checkbox"/> Option A Item 7	Average Importance Negative Impact <input type="checkbox"/> Option A Item 11	Average Importance Negative Impact <input type="checkbox"/> Option B Item 2	Average Importance Very Negative Impact <input type="checkbox"/> Option B Item 35	Average Importance Negative Impact <input type="checkbox"/> Option C Item 31	Average Importance Negative Impact <input type="checkbox"/> Option C Item 33	Average Importance Negative Impact <input type="checkbox"/> Option C Item 31	Average Importance Negative Impact <input type="checkbox"/> Option C Item 33	Average Importance Positive Impact <input type="checkbox"/> Option B Item 3	Average Importance Positive Impact <input type="checkbox"/> Option B Item 34	Average Importance Negative Impact <input type="checkbox"/> Option C Item 5	Average Importance Negative Impact <input type="checkbox"/> Option C Item 21

Sorted by Importance

DCODE Group

Instructions (includes explanation of DCODE scoring)

 Option A Item 17	 Option A Item 29	 Option B Item 20	 Option B Item 30	 Option C Item 28	 Option C Item 19
 Option A Item 17	 Option A Item 4	 Option B Item 20	 Option B Item 24	 Option C Item 28	 Option C Item 27
 Option A Item 25	 Option A Item 29	 Option B Item 18	 Option B Item 6	 Option C Item 19	 Option C Item 15
 Option A Item 32	 Option A Item 1	 Option B Item 34	 Option B Item 36	 Option C Item 12	 Option C Item 33
 Option A Item 7	 Option A Item 13	 Option B Item 3	 Option B Item 26	 Option C Item 8	 Option C Item 22
 Option A Item 9	 Option A Item 16	 Option B Item 2	 Option B Item 30	 Option C Item 5	 Option C Item 21
 Option A Item 11	 Option A Item 10	 Option B Item 14	 Option B Item 35	 Option C Item 31	 Option C Item 23

Scoring Sheet

-Write your choice as Best option on the “100” line.

-Write your choice as Worst option on the “0” line.

-Circle the number that best represents where you would assign the remaining option.

100 _____
90
80
70
60
50
40
30
20
10
0 _____

☐ Male
☐ Female

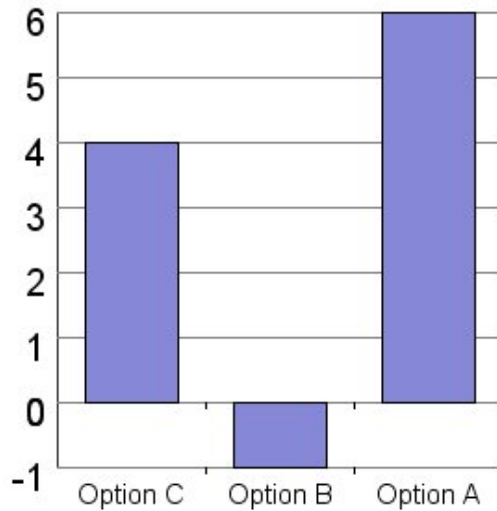
Which did you think helped the most in making your decision?

- ☐ Sorting by Importance
☐ Sorting by Impact
☐ Both Equal

How would you assess your confidence in the assigned ratings?

___ Very High
___ High
___ Above Average
___ Average
___ Below Average
___ Low
___ Very Low

“Correct” Response



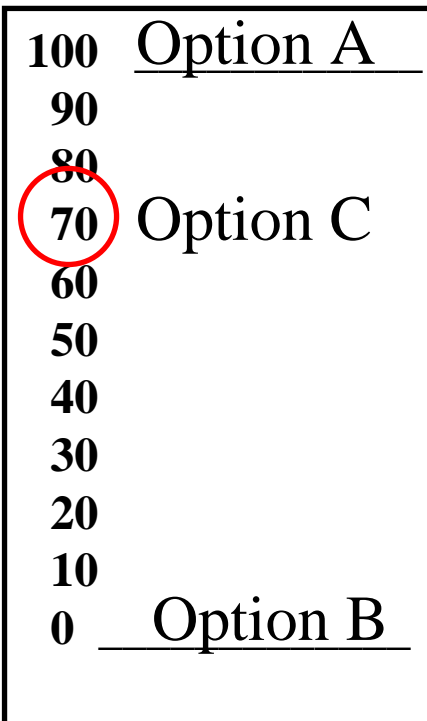
Option A = +6

Option B = -1

Option C = +4

Distance from Worst to Best = 7

Option C is 5/7 of the way = 71%





Subject gets 4-sheet booklet:

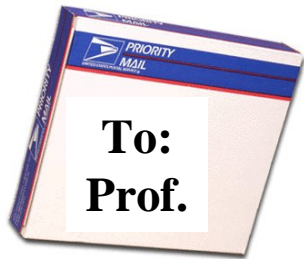
Scoring sheet

36 IOBs sorted by Impact

36 IOBs sorted by Importance

Instructions

Request to you...



**I send you DCODE
test material**



**Faculty
member**



**Classroom
testing (20 min.)**



**You collect responses, send
back in enclosed mailer**



Technology Demonstrations Planned

In Progress:

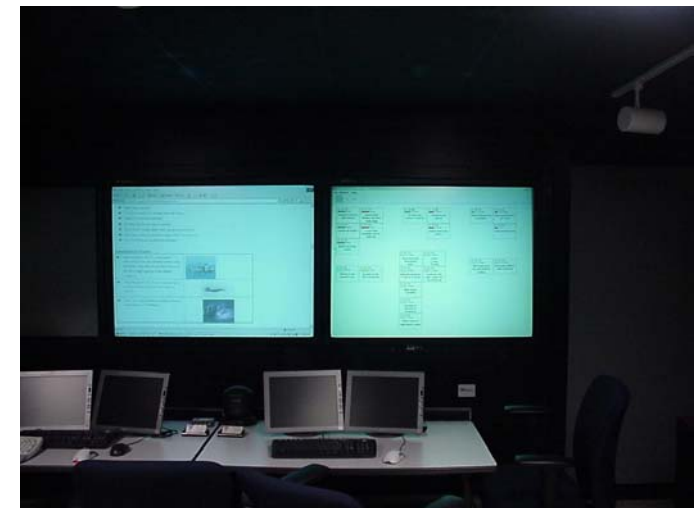
- **Human Systems Performance Assessment Capabilities (HSPAC)**

Possible:

- **Composable FORCEnet**
- **Trident Warrior**
- **Expeditionary Strike Group 1 (ESG-1)**

The Human Systems Performance Assessment Capability (HSPAC)

- **The Human Systems Performance Assessment Capability (HSPAC), is a Navy infrastructure that will allow individual and system-level human performance to be assessed and certified.**
- **The Usability and Engineering Research Lab and the Composeable FORCEnet Human Systems Integration (CFnHSI) Lab in Point Loma, Calif., will be a key part of this distributed capability.**
- **HSPAC will enhance fleet readiness and operational effectiveness at the lowest total ownership cost by providing personnel, expertise, equipment, connectivity, tools, models, environments and alliances necessary to measure, analyze, assess and certify Sailor performance in warfighter systems across all life-cycle phases.**



Composeable FORCEnet (CFn)

A major goal of Composeable FORCEnet is to provide mechanisms to transform information into knowledge in a manner that directly supports decision making at all levels of command in a Joint and combined warfighting environment.

Grand CFn Challenges

- **Technical Challenges**
 - Reality of “Open Systems”
 - Multi-level Security and Information pedigree and trust issues
 - Network Access, Bandwidth, Latencies, QOS
 - Computing Infrastructure
 - Situation Awareness / Decision Support (Cognition) Development, and Application of Modeling and Simulation

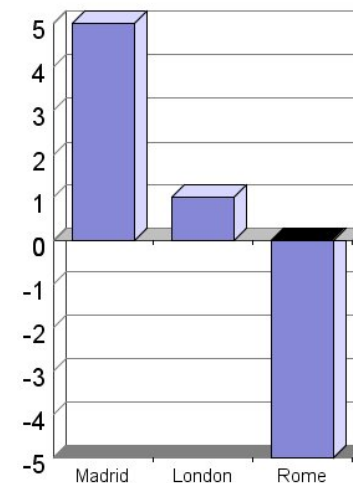
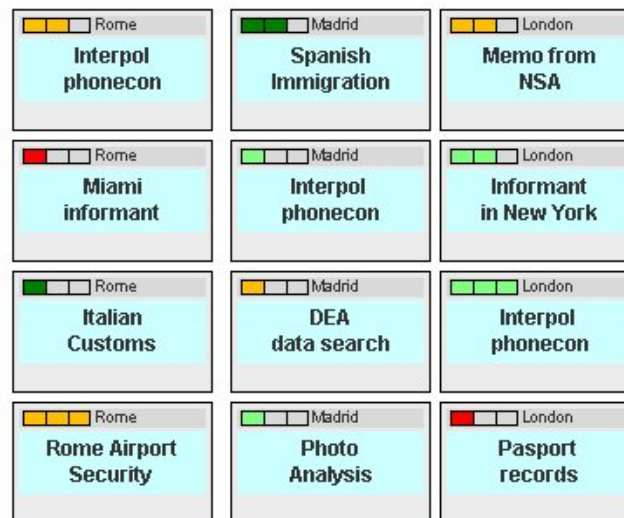


Technology Demonstrations Planned (Intelligence Community)

“Is Carlos still in Columbia?”
(situation assessment)



“Where is Carlos?”
(option selection)

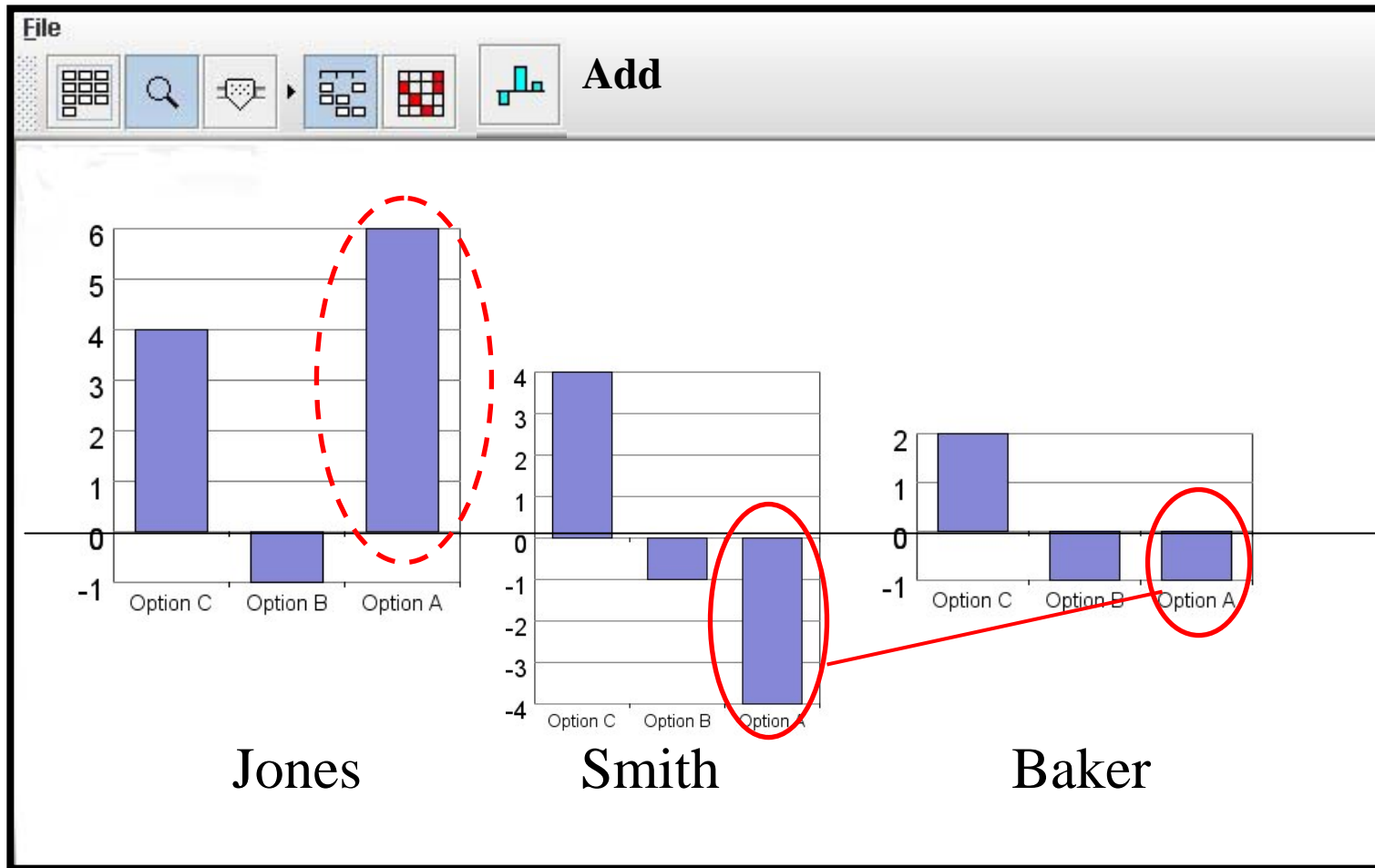




Expected Final Products

- Shrink wrapped, robust version of EWall/DCODE software
- Detailed User's Manual (PDF format)
 - Supporting AVI's
- Research results demonstrating the efficacy of DCODE as a decision support tool.
- Briefs/support/transitions to candidate user community

#1 Priority DCODE Software Enhancement

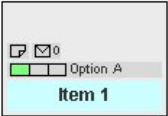


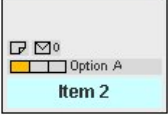

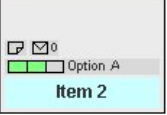


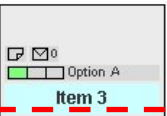

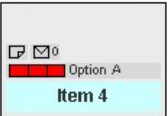
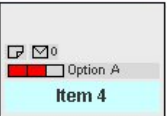
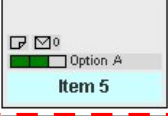


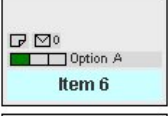

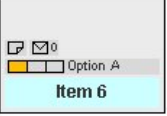
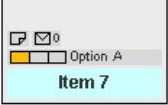




Option to Select (in **Exchange View**) Summary Score
display for all participants

Reaching Consensus:

Where are the critical differences?

12 items for
Option A

	Jones	Smith	Baker
			
			
			
			
			
			
			

Secondary

**Here are the
critical assessment
differences:
focuses group
discussion on the
two main items
creating conflict and
preventing consensus.**

These feature is not yet available



Planned Publications

**“Quantification of subjective information assessments in C2
decision option selection”**

**Cowen, M and Fleming, R. Paper accepted at Command
and Control Research and Technology Symposium, San
Diego, June 14-17, 2006.**



**Research & Engineering
Development, Inc. (RED-Inc)**



Project Presentation

- Focus of project presentations is the technical exchange of ideas in collaboration and knowledge management.
- At a minimum, the following topics should be addressed in the presentation:
 1. Project Title / Research Team Members
 2. Overall Objectives and this year's Objectives
 3. Research Questions Addressed
 4. Technical Approach
 5. Experiments (Planned/Completed) and Results (if available)
 6. Technology Demonstrations Planned
 7. Expected Final Products/where to be used
 8. Identify Recent or Planned Publications
- Presentation Time: 30 minute brief, 10 minute Q&A